Major Prevention Opportunities to Improve Health in Montana

Prepared by
Montana Department of Public Health & Human Services,
Public Health & Safety Division
2006

ACKNOWLEDGEMENTS

A message from:

Joan Miles, MS, JD
Director
Department of Public Health and Human Services

The Department of Public Health and Human Services (DPHHS) is committed to improving the health of Montanans to the greatest extent possible. This goal is being pursued by dedicated workers at DPHHS and at local health departments across the state in collaboration with a wide variety of important partners. Everyone in Montana needs to contribute if this goal is to be achieved.

Determinants of health include genetics, social circumstances, environmental conditions and medical care. But, the most important determinants are the behavioral choices that individual Montanans make for themselves and for the children who rely on them.

The report you are about to read highlights major prevention opportunities that must be captured in order to improve the health of all Montanans. Information in this report will be used to help:

- Focus the work of the state and local health departments on prevention opportunities that target the leading causes of death and disability in Montana,
- Inform state, local and tribal policymakers about the health issues that have the greatest impact on the populations they represent, and
- Encourage and empower individual Montanans to take action to improve their own health and the health of those who depend on them.

It is my pleasure to acknowledge the DPHHS workers who developed this report and to thank the external reviewers whose insights and suggestions improved the content in substantial ways. These reviewers represented local health departments, health care providers, and Indian health care officials. It is now time to capture the prevention opportunities highlighted in this report. All Montanans can benefit.

Joan Miles

Joan Miles

CONTENTS

INTRODUCTION

This report was prepared for the people of Montana by the State Department of Public Health and Human Services. The report describes the health status of Montanans by highlighting the major preventable causes of death and disability. The concluding section of this report lists major prevention opportunities that exist and some of the steps that need to be taken to capture these opportunities. Much can be done to improve the health of all Montanans. To accomplish this the Department of Public Health and Human Services welcomes the chance to work with local health department colleagues, health professionals throughout the state, and particularly individual Montanans of every age, sex, race, and economic group.

A Word about the Format of this Report

Most pages in the report consist of two columns. One column contains brief descriptions and health status highlights presented as bullet points. The other presents health status highlights in graphic form.

The sections of the report will illustrate important themes including:

- Health status challenges and prevention opportunities vary among age groups; the elderly and the very young face special challenges.
- Disparities in health status exist; people who are economically disadvantage face special challenges.
- Public health programs and strategies work; public health prevention efforts yielded tremendous health improvements in the 20th Century and will continue to do so in the future.

During the last quarter of the 20th Century the infant mortality rate in Montana was cut in half once and then again (from 21.5 infant deaths per 1000 live births in 1970 to 5.8 in 2000). Thousands of cases of measles occurred each year in Montana prior to 1968 when measles vaccine became available; no case of measles has been reported in Montana since 1990. Many babies born with congenital rubella syndrome in the 1960s have lived lives complicated by sight and hearing impairments. A case of this syndrome has not occurred in Montana since 1990.

Public health works. In the 21st Century it is important to maintain prevention strategies from the 20th Century and to add new strategies to capture major prevention opportunities that now exist.

This report highlights important health status issues for Montanans. Much more information is available than could be included in this report. Therefore, interested readers are invited to pursue additional information by going to information sources provided in the Appendix and at the end of each section. For example,

WANT TO KNOW MORE about … the causes of death in Montana?

See:www.dphhs.mt.gov/statisticalinformation/vitalstats
Contact: Montana Vital Records
Phone: (406) 444-1756

When the prevention opportunities presented in this report are achieved, Montanans will lead even longer and healthier lives.

THE PEOPLE OF MONTANA

Nearly one million people make their home in Montana (Figure 1). The population of Montana has a diverse age, race, and geographic distribution. Throughout this report, the relationship between health indicators and several demographic characteristics will be displayed. In this section, key demographic characteristics of the Montana population are described.

Population Characteristics with Important Public Health Implications

- In 2000 the median age in Montana was 37.5 years (36.6 for men; 38.5 for women). 13% of the population was 65 or older; 41% of women were of child bearing age (15 to 44 years) (Table1).
- The population is getting older. In 2005, no county had more than 26% of its population in the 65 and older age group; but by 2025 one of every four counties will (Table 2).
- 91% of Montanans are white. The largest non-white race group is American Indians, who make up 6% of the population (more than 56,000 persons).
- 31% of Montanans live in rural counties (Figure 2).
- 26% of Montanans have incomes less than 150% of the federal poverty level.
- 92% of Montana adults have completed high school and 61% have completed at least some college.

WANT TO KNOW MORE about … the people of Montana?

See:www.censusfinder.com/montana.htm
Contact: Montana Census
Phone: (406) 444-2685

Figure 1: The population of Montana increased from 1970 to 2000

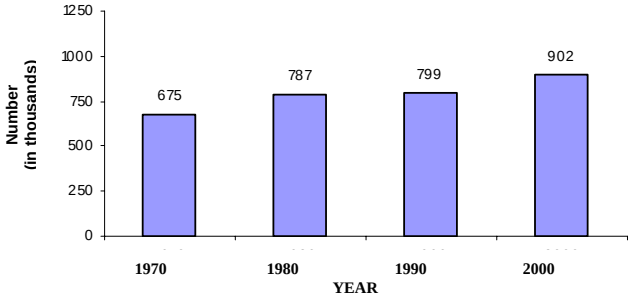


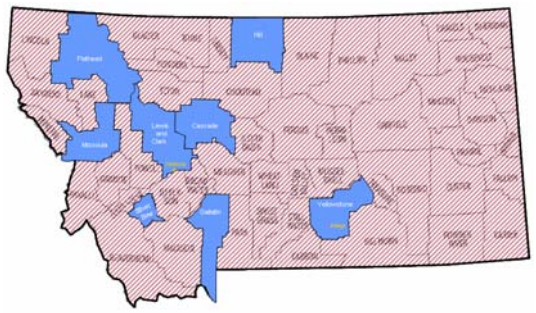
Table 1: Percent (and number) of Montana population in selected age groups, by sex, 2000 census.

AGE (years)	ALL		MEN	WOMEN
	%	#	%	%
0-14	21	(186,130)	21	20
15-44	42	(374,901)	42	41
45-64	25	(220,207)	25	24
65+	13	(120,949)	12	15

Table 2: Number of the 56 Montana counties in which people 65 and older are >26% or 22-26% of the population.

Percent of population that is age >65	2005	2020	2025
>26%	0	6	15 (25% of co.)
22-26%	3	17	22 (37% of co.)

Figure 2: Rural (no town with 10,000 or more people) and Other counties in Montana.



CAUSES OF DEATH

Montana residents are living longer than ever; the mortality rate (age adjusted) declined 30% from 1970 (1186 per 100,000) to 2003 (770 per 100,000) (Figure 1). The leading causes of death differ from one age group to another, and many of the deaths in each age group could be prevented, or at least delayed to allow longer, healthy life.

Leading Causes Of Death

The percentage of deaths for the leading causes in each age group for the five year period from 1999 to 2003 were:

- For infants (under 1 year old): conditions beginning in perinatal period (33%); congenital anomalies (25%); sudden infant death syndrome (19%).
- For children (1 to 14 years old): unintentional injuries (46%); cancer (9%); homicide (7%); suicide (5%).
- For adolescents (15 to 24 years old): unintentional injuries (57%); suicide (21%); homicide (5%); cancer (5%).
- For young adults (25 to 44 years old): unintentional injuries (30%); suicide (16%); cancer (14%); heart disease (9%); homicide (4%).
- For adults (45 to 64 years old): cancer (34%); heart disease (24%); unintentional injuries (7%).
- For elderly (65 or older): heart disease (29%); cancer (22%); cerebrovascular disease [stroke] (9%); chronic lower respiratory disease (8%).
- The overall death rate and the death rates for all leading causes of death are dramatically higher for American Indians than for whites (Table 1, Figure 2)

Figure 1: Life expectancy and death rate (per 100,000) for Montanans, 1970 to 2003

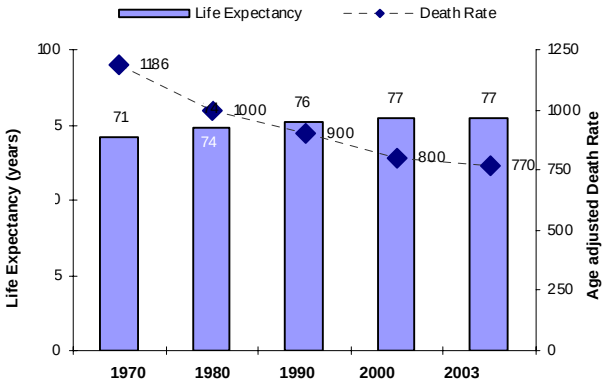
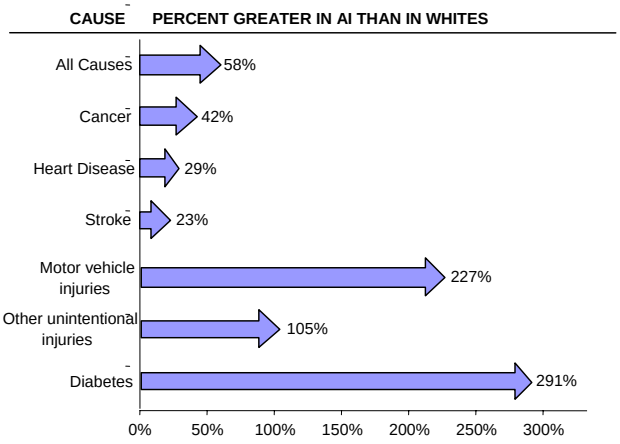


Table 1: Age adjusted death rate for leading causes of death, 1990-2003, Montana

Cause of Death	Rate (per 100,000)	
	Whites	American Indians
All Causes	834	1319
Heart Disease	219	283
Cancer	194	275
Cerebrovascular Disease [stroke]	61	75
Chronic Lower Respiratory Disease	55	77
Non-Motor Vehicle Injuries	24	49
Motor Vehicle Injuries	21	68
Pneumonia and Influenza	29	64
Diabetes	21	81
Suicide	19	21

Figure 2: Excess death rate for American Indians (AI) compared to whites, 1990-2003



Actual Causes of Death: The Prevention Challenge

One way to describe causes of death tells of the body systems (e.g., cardiovascular disease) or the disease processes (e.g., cancer) that are involved. An alternative way describes the behavior and conditions that lead to death - - the actual causes of death. (See Insert Box) It is these actual causes of death that require public health attention in order to achieve longer, healthier lives for Montanans. For example, in 1999 at least 18% of all deaths in Montana were attributable to smoking. If Montanans smoked less, more than 1400 premature deaths could have been delayed. These persons would have had longer and healthier lives.

Can Public Health Steps Yield Dramatic Results? The Answer Is Yes

Public heath interventions, many of which are accomplished by health care professionals working in clinical settings, can yield dramatic results. For example, from 1970 to 2000 the infant mortality rate (death before one year of age) in Montana decreased from 21.5 per 1000 live births to 5.8. This dramatic decline was due to a variety of improvements, particularly in access to prenatal care and advances in care for high-risk infants.

While the infant mortality rate declined for both whites and American Indians (Figure 3), the rate for American Indians remains higher. This is an example of a health status disparity that requires additional public health attention- -a prevention opportunity waiting to be achieved.

WANT TO KNOW MORE about… the causes of death in Montana?

See:www.dphhs.mt.gov/statisticalinformation/vitalstats
Contact: Montana Vital Records
Phone: (406) 444-1756

ACTUAL CAUSES OF DEATH

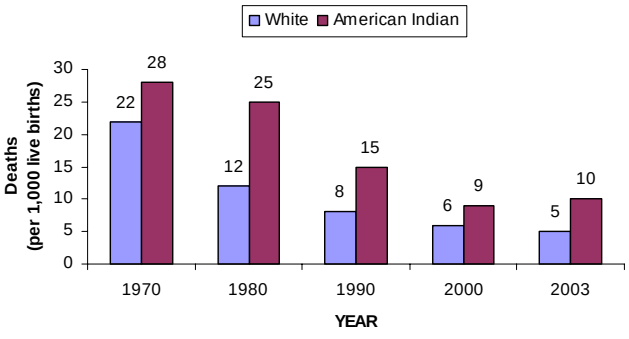
Several external, non-genetic factors contribute substantially to death in the United States including Montana. These external factors are modifiable and therefore prevention efforts need to be targeted at these factors, which have been called "actual causes of death"

The following actual causes of death led to half of all deaths in the United States in 2000:

Actual Cause	% of deaths
Tobacco	18
Poor diet and physical inactivity	16
Alcohol misuse	4
Microbial agents	3
Toxic agents	2
Motor vehicle	2
Firearms	1
Sexual behavior	1
Illicit drug use	1

[see Journal of American Medical Association 2004; 291:1238-1245]

Figure 3: Infant mortality rate for whites and American Indians, Montana, 1970-2003



HEALTH RISK CHACTERISTICS OF ADULTS IN MONTANA

Many deaths and much disability could be prevented if Montanans modified key risk behaviors. In this section, the prevalence of several important risk characteristics and behaviors, as well as the way these modifiable behaviors vary among age, race, and geographic groups, are described. In order to achieve a healthier Montana, effective prevention strategies to help modify these behaviors must be in place (Figure 1).

Prevention Practices

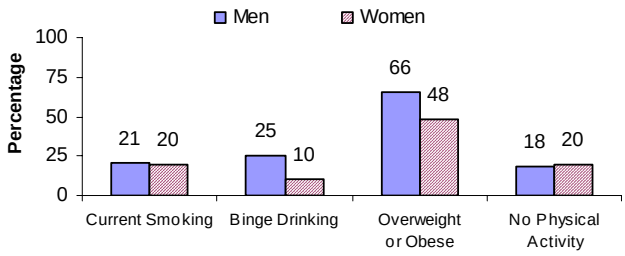
Some prevention services are designed to prevent disease: these services are called primary prevention. Other prevention services are designed to detect disease at an early stage so that the disease can be treated before complications develop: these services are called secondary prevention. Both primary and secondary prevention services are provided in Montana.

Primary Prevention: The best example of primary prevention is the delivery of immunizations to people of all ages.

- Childhood immunization in Montana is at an all-time high. At school entry, the immunization rate for diphtheria, tetanus, pertussis (DTaP) is 99% (Figure 2). A survey conducted in provider offices in 2004 indicated 91% of children age 2 seen by Montana providers had completed an immunization series appropriate for their age.
- In 2004 the adult immunization rate for pneumococcal disease in Montana was the highest in the U.S. (72% compared to the national median of 65%), and the influenza immunization rate was in the top third of state rates (72% compared to the national median of 68%) (Figure 2).

Figure 1: Risks that lead to premature death and disability, in Montana, 2004

(a) by sex



(b) by age (years)

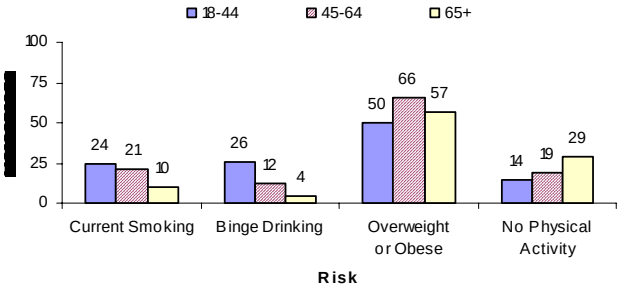
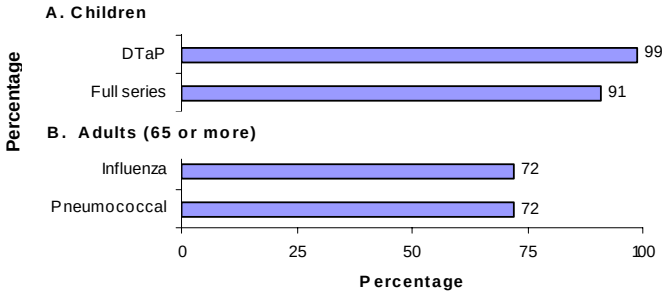


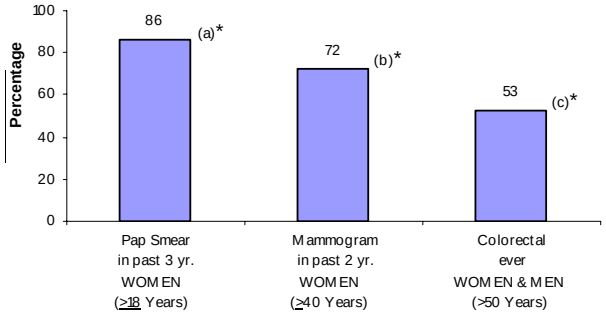
Figure 2: Percent of population immunized, 2004



Secondary Prevention: An excellent example of secondary prevention is the delivery of cancer screening for adults. Many cancers can be cured if detected early especially cancer of the cervix, breast, or colon.

- 86% of women in Montana had a pap smear in the past 3 years (Figure 3). However, 4% (14,000 women) have never had a pap smear.
- 72% of Montana women 40 or older had a mammogram in the past 2 years (Figure 3). However, more than 45,000 women were not screened during this period.
- Colon cancer is preventable but only half of Montana adults 50 or older have ever had colonoscopy or sigmoidoscopy (Figure 3).

Figure 3: Cancer screening for Montanans, 2004



*From 1995 to 2003: (a) 56 and (b) 641 Montana women and (c) 916 Montanans died of these preventable cancers.

Health Risk Behaviors

The risks that yield most of the disease burden in Montana are: smoking, misuse of alcohol, too little physical activity and poor diet choices.

Smoking: The leading preventable cause of death, smoking kills more Montanans than all infectious diseases, motor vehicle injuries, suicide, homicide, and breast cancer, *combined*.

- 20% of adult Montanans are current smokers (2004); since 1990, the smoking rate has not changed appreciably (Figure 4)
- The smoking rate of high school youth in Montana which increased during the 1990s is (finally!) declining (Figure 4)
- The rate of smoking in pregnancy is higher in Montana (19% in 2003) than in the U.S. (11% in 2002) and even higher in American Indian women in Montana (30% in 2003) (Figure 5)

Figure 4: The smoking rate in Montana adults has remained the same since 1990, but it is (finally!) declining in high school youth

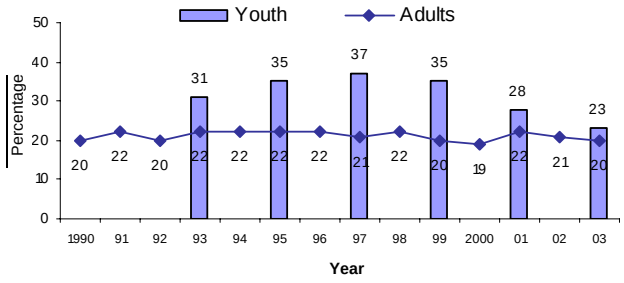
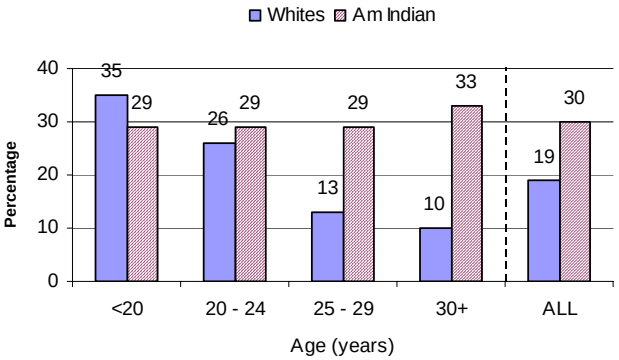


Figure 5: Smoking in pregnancy by Montana women, 2003



- The smoking rate for American Indians (44%) is markedly higher than for whites (19%); many smokers, both American Indian and white, have tried to quit (Figure 6).
- Smoking is the actual cause of many cancers and is a major risk factor for cardiovascular disease, i.e., smoking drives the leading causes of death in Montana.

Misuse of alcohol: Problem drinking is responsible for many preventable deaths, diseases and injuries.

- Binge drinking (having 5 or more drinks on one occasion) is too common in Montana, especially among young adults (Table 1).
- One in five young men (age 18-24) who drink in Montana also drive when they have had too much to drink (Table 1).
- Alcohol misuse is the actual cause of a high proportion of injury death and disability, especially among children and young adults.

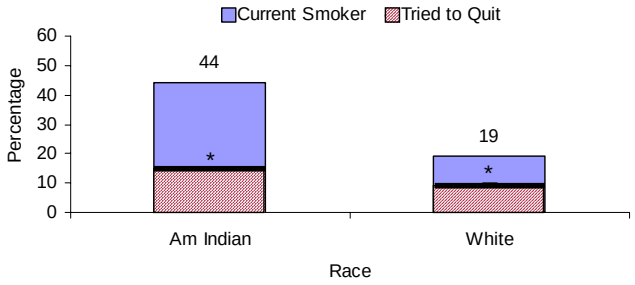
Overweight/obesity: Too many pounds per person in Montana could reverse prevention gains against heart disease. (Overweight is classified as a body mass index or BMI 25.0 to 29.9 kilograms per meter squared and obesity as greater than 30.0.)

- The prevalence of obesity in Montana adults doubled from 9% in 1990 to 19% in 2003 (Figure 7).
- Over half of white adults and almost three quarters of American Indian adults were either overweight or obese in 2004 (Figure 8).

Physical activity: get moving to stay healthy

- Over one in five white and American Indian adults in Montana reported no leisure time physical activity in 2004 (Figure 8).

Figure 6: Smoking rate for American Indian and white adults; many tried to quit, 2004



*33% of American Indians and 50% of whites tried to quit in past year

Table 1: Percent of adults binge drinking and driving after having too much to drink, Montana, 2004

Age	Men		Women	
(Years)	Binge	Drink/drive*	Binge	Drink/drive*
18 – 24	40	19	27	2
25 –44	32	8	13	4
45+	16	4	4	2

*Among adults who had 1 or more drinks, the percent who drove after having too much to drink.

Figure 7: Percent of adults who were obese, Montana, 1990 – 2003

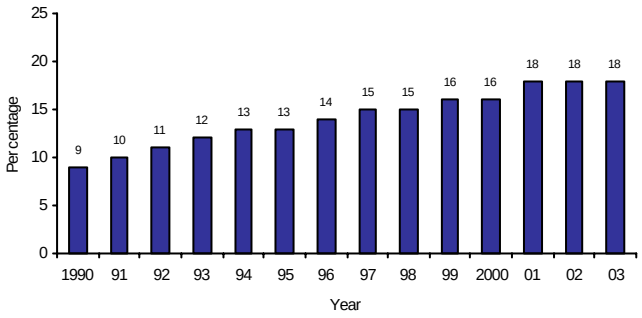
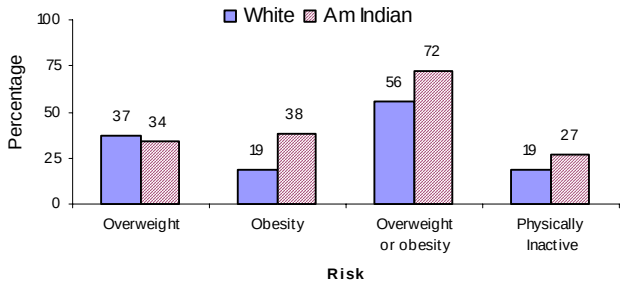


Figure 8: Overweight, obesity and physical inactivity in Montana adults, 2004



Access to Health Care

Most adult Montanans report their health status as good to excellent (Figure 9) and most have health insurance coverage (81%).

However, 13% report their health status as fair or poor and 19% do not have health care coverage. In addition, 25% of adults do not have a personal health care provider. Persons without health insurance and especially those without a personal health care provider are much less likely to receive important prevention services.

Many Montanans are getting neither the health care nor the prevention services they need

- In 2002, more than 33,000 adults felt a need for medical care but did not receive it; people without health insurance and without a personal health care provider were the most likely to have unmet medical needs (Figure 10)
- Adults without health insurance were less likely to receive important prevention services such as adult immunizations or cancer screening.
- Adults with poor mental health (reporting 14 or more days of poor mental health in the past month) were more likely to judge their general health status as fair or poor (37%) than were persons with good mental health (reporting fewer than 14 days of poor mental health in the past month) (11%) (Figure 9).

Figure 9: Health status reported by adults, Montana, 2004

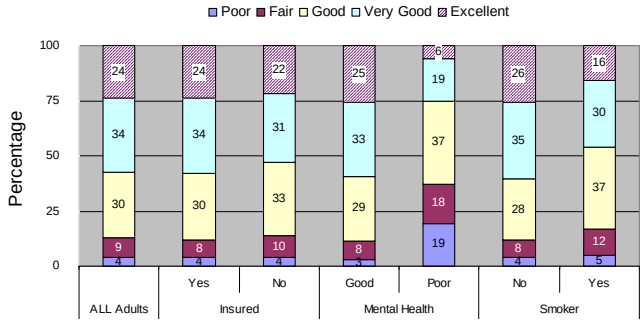
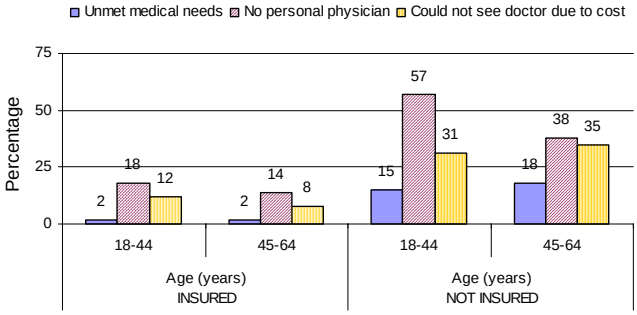


Figure 10: Unmet medical needs for adults, Montana, 2004



WANT TO KNOW MORE about … the health risk characteristics and access to health care for Montana adults?

See: www.brfss.mt.gov
Contact: Montana Behavioral Risk Factor Surveillance System Program
Phone: (406) 444-2973

COMMUNICABLE DISEASE CONTROL

The control of communicable diseases in Montana is based on careful surveillance and timely intervention by public health officials. Disease surveillance identifies unusual occurrences of illness (outbreaks), which most often have well-known causes, but some have newly-recognized causes. This identification allows timely intervention so that outbreaks can be quickly controlled to prevent additional cases. Ongoing surveillance is also used to evaluate the effectiveness of control measures. Some of the reportable communicable diseases in Montana are shown on Table 1.

Control Of Disease

Tremendous strides have been made in Montana to reduce sickness and death due to communicable diseases. This has been especially remarkable for vaccine preventable diseases such as measles and rubella. Immunization programs have demonstrated that public health works!

- The number of tuberculosis cases reported in 1960 was 220; in 2004, only 15
- No case of measles has been reported in Montana since 1990 (Figure 1)
- No case of congenital rubella has been reported in Montana since 1990

Responding To Disease Outbreaks

Surveillance activities identify problems so that quick action can be taken.

- In 2005, there was a 7-fold increase in pertussis cases reported in Montana. Local health department workers responded to this epidemic with control measures that prevented even more cases (Figure 2).
- In 2004, 19 food borne outbreaks caused diarrheal disease in at least 569 Montanans
- In 1996 and again in 1997 a human death from rabies was documented in Montana. Rabies vaccine is administered to dozens of Montanans each year to protect people exposed to this virus
- Rapid acquisition and administration of botulism antitoxin saves lives when cases are reported quickly

Table 1: Number of cases of selected reportable diseases identified in Montana in 2002, 2003, 2004

	Year		
Disease	2002	2003	2004
Salmonellosis	91	112	188
E. coli O157 H7	31	17	16
Chlamydia	2509	2525	2617
Gonorrhea	126	119	89
HIV/AIDS	31	29	20

Figure 1: Measles in Montana; in control but always under surveillance, 1962-2004

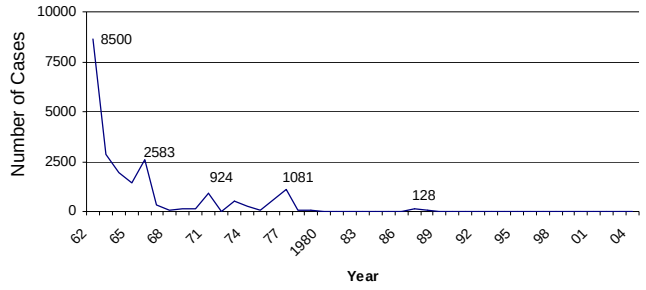
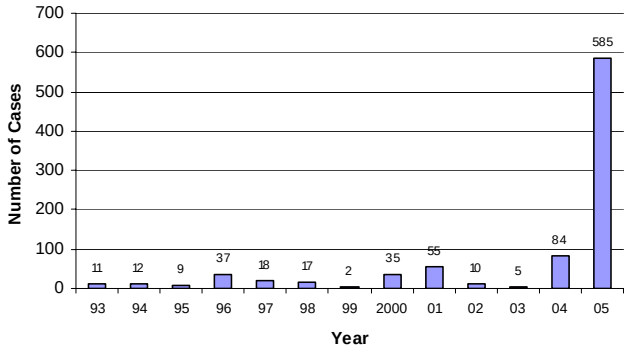


Figure 2: Pertussis in Montana; always under surveillance but not always in control, 1993-2005



Identifiying Unusual Diseases In Montana

Unusual diseases are regularly identified by careful surveillance in Montana.

- West Nile Virus has been identified in horses, birds, mosquitoes and people (Figure 3) in Montana.
- In 1994, the first reported outbreak caused by a specific toxin-producing strain of E. coli was investigated in Helena

And because Montanans are no further than an airplane trip from any pathogen on the planet, surveillance is in place to identify known diseases if they occur.

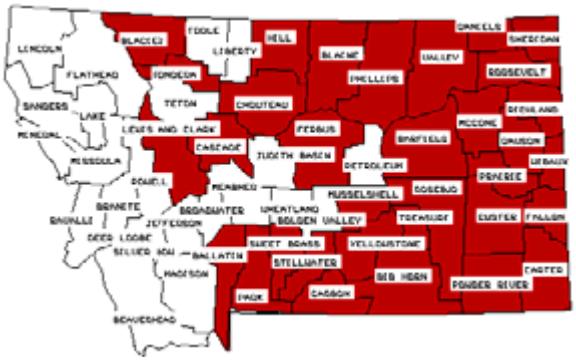
- Important lessons for Montana have been learned from experience with SARS in China and Canada
- Health authorities in Montana are preparing to confront an influenza pandemic

Some Montanans are at Higher Risk than Others for Communicable Diseases

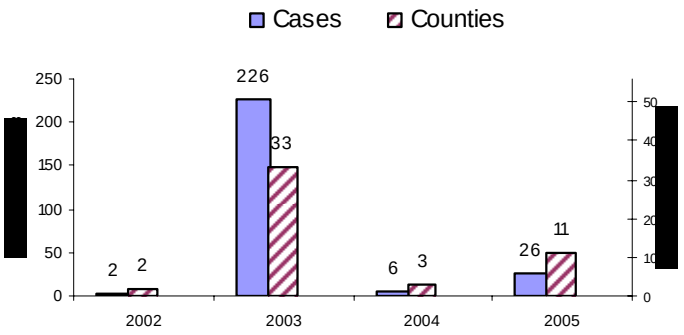
- American Indians comprise only 6% of Montana's population, yet account for 53% of the cases of tuberculosis in the state.
- Greater than 90% of deaths due to pneumonia and influenza occur in people older than 65.
- Male-to-male sexual contact and injecting drug use account for 85% of the cases of HIV/AIDS in Montana.
- Young women 15 to 24 years old account for 76% of all reported chlamydia cases in Montana; chlamydia is the most common reported communicable disease in Montana.

Figure 3: West Nile Virus infections in people in Montana; 2002-2005

(a) Counties where one or more cases were identified



(b) number of West Nile Virus cases and number of counties with cases



*First human cases identified in Montana in 20002

WANT TO KNOW MORE about … communicable diseases in Montana?

See: www.dphhs.mt.gov/phsd/communicable-disease
Contact: Communicable Disease Control
Phone: (406) 444-0273

MENTAL HEALTH AND MENTAL HEALTH SERVICES

In 2003 about 8% of all Montana adults reported significant emotional distress (14 or more days of poor mental health in the past month). The average number of poor mental health days for these Montanans was 23 days out of 30! This distress often includes depression, anxiety, and other emotional problems that may substantially interfere with major life activities, such as self-care, employment, safe housing, and personal relationships. Significant emotional distress also substantially affects physical health (Figure 1).

The good news is that appropriate treatment for emotional problems can effectively reduce distress, improve day-to-day functioning among affected individuals, and return hope and meaning to the lives of our fellow Montanans.

The Health Challenges

- People with significant emotional distress are more likely to smoke and less likely to have health insurance (Figure 2).
- In addition, adults with significant emotional distress are more likely to have chronic diseases (Figure 3).

Addiction In Montana

Each year abuse of alcohol costs Montanans over $360 million; $400 per year for every person in the state. The total annual cost of alcohol, tobacco, and other drug abuse is more than $900 million in Montana. And alcohol-related events, such as drunk driving or drinking during pregnancy, too often result in premature deaths or lifelong disabilities.

Figure1: Poor physical health in Montana: more common in adults who report significant emotional distress, 2004

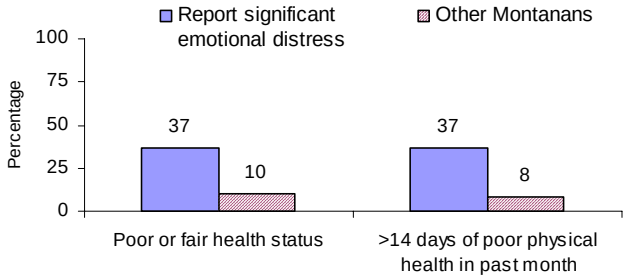


Figure 2: Use of tobacco, misuse of alcohol and lack of health insurance in Montana; more problems for adults with significant emotional distress, 2004

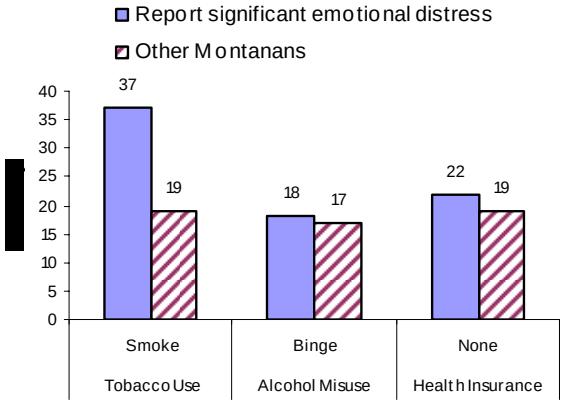
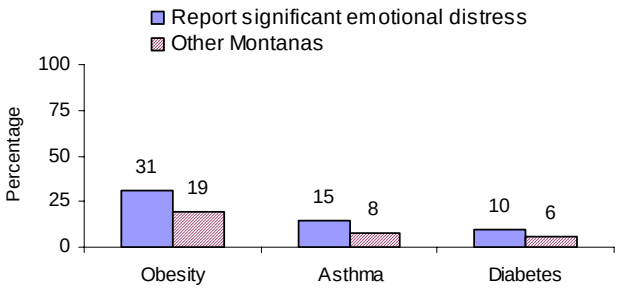


Figure 3: Chronic diseases in Montana adults: additional disease burden for adults with significant emotional distress, 2004



This cost is comprised of several elements, including the treatment of addiction, related medical costs, costs to employers, and costs to communities for law enforcement.

In 1998 expenditures related to control of substance abuse in Montana were assessed. Strikingly, more than 95% of the expenditures were for treatment and control of existing abuse while less than 3% was devoted to prevention.

Characteristics of Persons Receiving Services for Addictions

- In 2005, there were more than 8200 clients of addiction programs in Montana; 80% were white; 17% were American Indian.
- Unfortunately, all age groups are in need of these services (Table 1).
- The most common drugs of abuse for these programs are alcohol, marijuana and methamphetamine (Table 2).
- Addiction treatment is provided in a variety of settings (Table 3).
- Of persons who completed addiction treatment services in 2001 to 2005, 73% were addiction free six months after treatment and 69% twelve months after treatment.

WANT TO KNOW MORE about … Mental health and mental health services in Montana?

See:www.dphhs.mt.gov/aboutus/divisions/addictions/addictivementaldisorders/index.shtml
Contact: Addictive and Mental **Disorders**
Phone: (406) 444-3964

Table 1: Montanans receiving treatment for addiction disorders, by age group, 2001-2005.

Age Group (years)	Percent	
	In treatment	Age when initially treated
Under 21	19	23
(0 – 17)	(7)	–
(18 – 20)	(12)	–
21 – 30	28	27
31 – 40	25	23
41 – 50	20	19
>50	9	7

Table 2: Number of persons receiving addiction treatment in Montana, 2005

Drug	New Admissions Number (%)
Alcohol	3769 (56)
Marijuana	1330 (20)
Methamphetamine	1007 (15)
All other	568 (9)
TOTAL	6674

Table 3: Addiction treatment services provided in Montana, 2005.

Service/setting	Persons Served Number (%)
Detoxification	515 (5)
Inpatient:	
hospital	404 (4)
free-standing	1639 (15)
Halfway house	96 (1)
Day treatment	93 (1)
Outpatient	6506 (60)
Outpatient: intensive	1654 (15)
TOTAL	10,907

CHRONIC DISEASE AND DISABILITY

Nearly two of every three deaths (62%) in Montana (5,233 in 2003) are due to chronic diseases. The vast majority of these deaths are due to smoking, too little physical activity, and poor diet choices. Chronic diseases are likely to become an even bigger burden as Montana's population continues to grow older. Prevention efforts must be focused on: modifying the risk factors associated with these conditions; making early diagnoses; and improving the quality of care.

Heart Disease and Stroke

Rates are declining.

- Heart disease and stroke mortality rates have decreased in Montana since 1990 (Figure 1).
- The heart disease and stroke mortality rates for American Indians are notably higher than the rates for Montanans overall (Figure 1).
- Because the population is growing and aging, even when heart disease and stroke mortality rates declined (Figure 1) the number of deaths due to these causes increased (Table 1). Similarly, the number of deaths caused by lung cancer increased (Table 1) despite little change in lung cancer incidence (Figure 2).

Cancer

- The four most common cancers in Montana are: prostate (19% of all cancers and 33% of cancer in men); breast (15% of all cancers and 31% of cancer in women); lung (14%), and colorectal cancer (11%).
- The incidence of newly diagnosed cases of colorectal, lung, and breast cancer have remained stable over the past 14 years; a spike in prostate cancer diagnoses in the early 1990s was observed in the entire U.S. including Montana (Figure 2). This spike was likely due to increased screening for prostate cancer at that time.
- A substantial proportion of lung cancer cases are the result of smoking. Lung cancer could be reduced by up to 90% if smoking were eliminated.

Figure 1: Heart disease and stoke mortality rates for all Montanans and Montana American Indians, 1990-2003

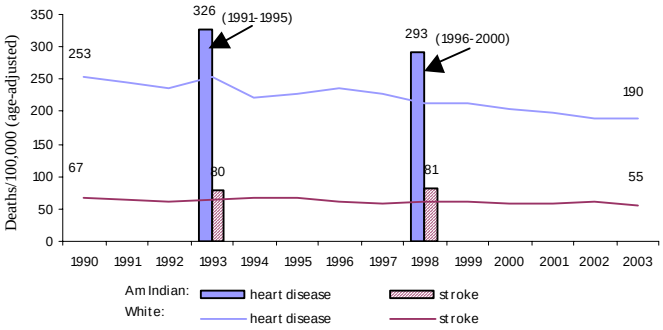
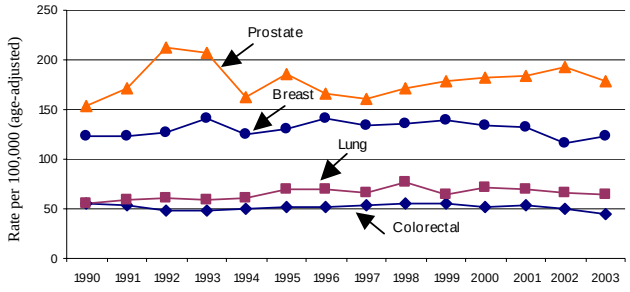


Table 1: The number of deaths caused by heart disease, stroke and lung cancer, Montana, 1991-1995 and 1996-2000

Cause of death	Number of Deaths 1991 To 1995	Number of Deaths 1996 To 2000	% increase from 1991-1995 to 1996-2000
Heart Disease	9,868	10,248	4%
Stroke	2,687	2,837	6%
Lung Cancer	2,276	2,474	9%

Figure 2: Incidence of the most common cancers in Montana, 1990-2003

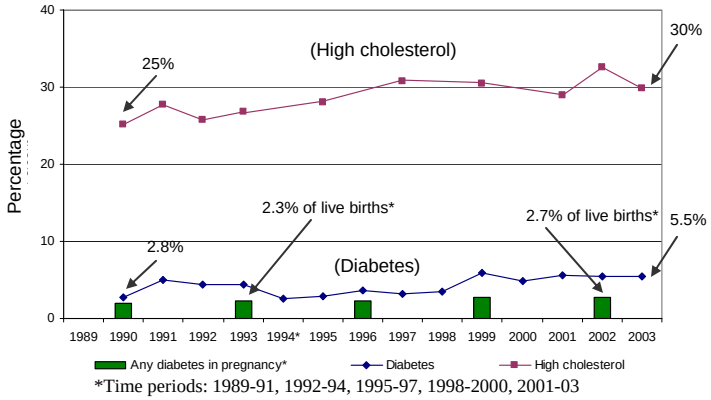


Diabetes and High Cholesterol

Rates are increasing.

- The prevalence of diabetes in adults in Montana has increased since 1990 (Figure3).
- Similarly the prevalence of high cholesterol has increased (Figure 3).
- Unless effective prevention strategies are applied, the increase in these modifiable risk factors, combined with the increasing rate of overweight and obesity, and the persistent prevalence of smoking in adults may reverse the decline in heart disease and stroke mortality rates that has occurred since 1990.

Figure 3: Prevalence of diabetes and high cholesterol in adults and diabetes in pregnancy, in Montana, 1989-2003



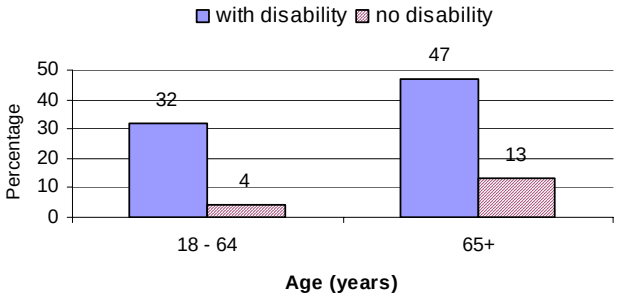
*Time periods: 1989-91, 1992-94, 1995-97, 1998-2000, 2001-03

Disability

One in five Montana adults lives with a disability.

- In 2003, 20% of adults with disability reported limitation of physical activity, and 6% reported use of special equipment to deal with a health problem.
- Disability increases with age from 10% of persons 18 to 24 to 38% of those 65 or older.
- Poor health status is reported more often by persons with disability (Figure 4).
- Montanans with disability were twice as likely NOT to engage in leisure-time physical activity (34%) as were Montanans without disability (17%), but four times as likely to report a fall-related injury (12% compared to 3%).

Figure 4: Adults reporting fair or poor health status in Montana, 2003



WANT TO KNOW MORE about …
Chronic Disease Control in Montana?

See:www.dphhs.mt.gov/PHSD/Tobacco/Tobacco-index.shtml
Contact: Chronic Disease Prevention & Health Promotion
Phone: 406-444-1437

MATERNAL AND CHILD HEALTH

The health of women and children is an important indicator of the health of a community. Factors that affect a woman's health, both before and during pregnancy, can also affect the health of her baby. A baby's health at birth can substantially affect its health as it grows into a child and adult. Prevention opportunities need to be recognized and acted upon so that Montanans have healthy lives from the prenatal period through childhood and grow into healthy adults.

Pregnancy and Infancy

- Over 11,000 babies are born in Montana each year; approximately one every hour.
- Most births occur to women who are between 20 and 30 years old (Table 1).
- Over 80% of pregnant women received prenatal care within the first three months of pregnancy in 2003. Among age, race and geographic groups, women who were age under 20, American Indian, and/or living on the eastern side of the state were less likely to seek prenatal care within the first 3 months of pregnancy.
- The percentage of babies with low birth weight increased from 5.9% in 1995 to 7.7% in 2003 (Figure 1).
- In 2003, one in five (19%) pregnant Montana women smoked during pregnancy, and in 2000-2001 one in three (33%) reported at least one occurrence of binge drinking in the 3 months before they became pregnant.
- An estimated 90,560 women in Montana age 13 to 44 are in need of contraceptive services and supplies; an estimated 55,260 of these women live at or below 250% of the federal poverty level.
- Although the rate of SIDS deaths in Montana has declined somewhat during the past decade (Figure 2), the rate for American Indian babies remains nearly 3 times higher than that for white babies.
- In 2005, 74% of mothers in WIC (Women, Infants and Children) breastfed their babies after birth, but only 26% were still breastfeeding after six months.

Table 1: Number of births, Montana, 2003 by age group and race

	Number (%) of births by age group		
Birth Category	White	Am Indian	Total (all races)
Total	9771 (86% of total)	1,393 (12% of total)	11384
Mother's age			
<20	863 (9)	327 (24)	1211 (11)
20-24	2547 (26)	514 (37)	3124 (27)
25-29	2904 (30)	301 (22)	3259 (29)
30-34	2223 (23)	168 (12)	2435 (21)
35+	1234 (13)	83 (6)	1353 (12)

Figure 1: Percent of births with low birth weight baby (<2500 grams) in Montana, 1995-2004

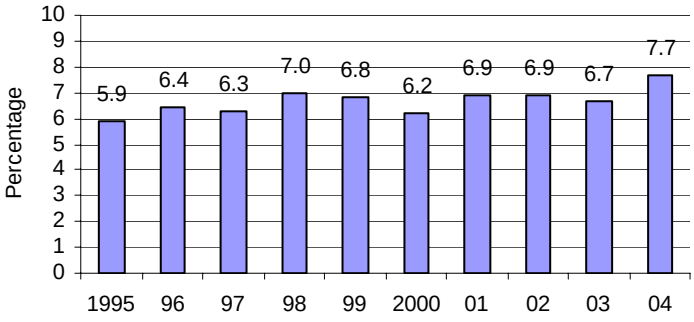
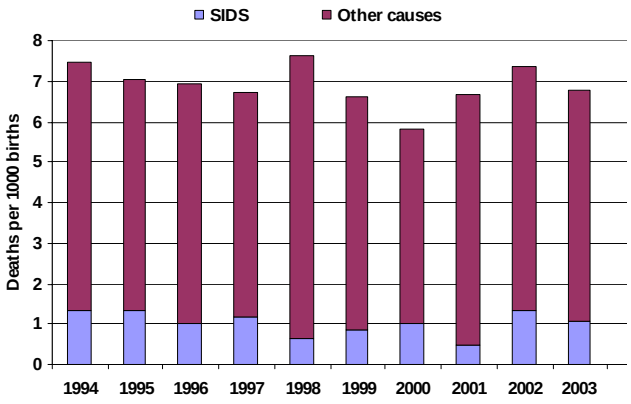


Figure 2: Sudden infant death syndrome (SIDS) and other causes of infant mortality, Montana, 1994-2003



Children and Adolescents

Unintentional injuries, including motor vehicle crashes, drowning and other injuries, are the leading cause of death of children and adolescents in Montana. Most deaths in Montana youth are preventable (Table 2). Risk-taking behaviors such as drug and alcohol use increase the chances that children will be injured. Avoiding these risks and adopting preventive behaviors can help children remain healthy. For instance, brushing teeth and having sealants applied to permanent teeth can contribute to good oral health. Being physically active and eating healthy foods can help kids stay fit.

- 37% of fatal motor vehicle crashes involving youth (age 0 to 21) were related to alcohol consumption in 2002.
- The rate of suicide in 10 to 24-year old youth in Montana was almost twice the rate throughout the US in 2000-2002.
- Many Montana children do not have access to dental care and do not receive dental prevention services. In 2003, approximately 62% of Montana 3rd graders had not had dental sealant put on their permanent teeth and 26% of 3rd graders had untreated dental decay.

Table 2: Causes of death and percent of deaths that were preventable in Montana youth (age <18 years), 2001-2002

Cause of death (by age group)	# of deaths	# (%) of deaths reviewed by FICMR* teams	# (%) of reviewed deaths determined to be definitely preventable
(Under 1 year)			
Natural	130	93 (72)	10 **(11)**
Injury	5	5 (100)	2 **(40)**
Homicide	1	1 (100)	1 **(100)**
Undetermined	18	17 (94)	11 **(65)**
TOTAL	154	116 (75)	24 **(21)**
(1-17 years)			
Natural	39	29 (74)	2 **(7)**
Injury	64	56 (88)	49 **(88)**
Suicide	17	17 (100)	9 **(53)**
Homicide	8	6 (75)	4 **(67)**
Undetermined	5	4 (80)	1 **(25)**
TOTAL	133	112 (84)	65 **(58)**

*FICMR: Fetal, infant and child mortality review

Children with special health care needs

- Approximately 12% of Montana's children and youth had a special health care need in 2001; this is only slightly lower than the national average (13%).
- The majority of children with special health care needs are between 8 and 14 years old.

In 2003, one in five (17%) Montana families with a child with special needs experienced financial problems due to their children's care needs.

WANT TO KNOW MORE about …
Maternal and child health in Montana?

See:www.dphhs.mt.gov/PHSD/family-health/FCHB-index.shtml
Contact: Maternal and Child Health Program
Phone: 406-444-4743

INJURY

At the beginning of the 21st Century injury is the leading cause of death for Montanans 1 to 44 years old, and the third leading cause of death for Montanans age 45 to 64. Most injury death and much injury-related disability is preventable.

Keeping Track of Injuries to Develop Prevention Strategies

- Motor vehicle related injuries are the leading cause of unintentional injury deaths for each age group from 1 to 44 years of age (Table 1).
- Drowning, poisoning, and falls also exact a heavy preventable mortality toll for these age groups.
- In persons 25 to 44 years old, intentional injuries take almost as many lives as do unintentional injuries (Table 2).

Responding To Injuries To Decrease Death And Disability

Emergency Medical Services (EMS) and trauma systems are a critical part of Montana's strategy to try to limit the death and disability burden caused by injuries.

- There are 115 non-transporting units, 138 ground transporting services and 12 air ambulance services licensed to provide a response to ill and injured people in Montana.
- In Montana's five most "urban" communities (population 25,000 to 80,000), 340 licensed EMT-Paramedics are primarily available to provide advanced life support. However, when someone calls for help in rural areas, 95% of the state's 4,700 licensed EMS providers are able to provide only basic life support (Figure1).
- Approximately 88% of Montana's 138 transport services are staffed by volunteer, basic EMTs. Finding such volunteers in rural communities is becoming more and more difficult.

WANT TO KNOW MORE about …
Injuries in Montana?

See www.MontanaEMS.mt.gov
Contact: EMS & Trauma Systems
(406) 444-3895

Table 1: Leading causes of unintentional injury deaths for Montanans 1 to 44 years old, 2000-2003

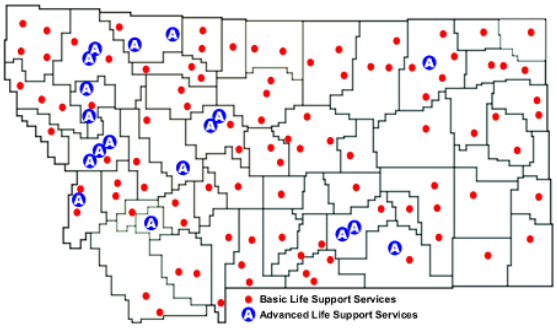
Rank Order	Age Group (years)			
	1 – 4	5 – 14	15 – 24	25 – 44
1.	MV*	MV	MV	MV
2.	Drowning	Drowning	Drowning	Poisoning
3.	**	***	Falls	Falls
4.	**	***	Poisoning	Drowning

*MV: motor vehicle related injuries
**Other deaths were due to excessive natural heat and accidental asphyxiation
***Three causes tied for 3rd in this age group: firearm, poisoning, and smoke/fire related

Table 2: Intentional and unintentional injury deaths for Montanans 1 to 44 years old, 2000-2003

Type of injury Death	Number by Age Group (years)			
	1 – 4	5 – 14	15 – 24	25 – 44
Unintentional	20	59	304	489
(Motor Vehicle)	(8)	(38)	(233)	(286)
Intentional	7	19	124	306
(Suicide)	(-)	(10)	(94)	(260)
(Homicide)	(7)	(9)	(30)	(46)
All injuries	27	78	428	795

Figure 1: Distribution of advanced and basic life support services in Montana, 2006



ENVIRONMENTAL QUALITY AND HEALTH

The environment plays an essential role in health. In 2004 people across Montana were asked which aspects of the environment were of most concern to them. Air quality, water quality, and exposure to heavy metals were the priority areas identified.

Air Quality

Pollution is found in both outdoor and indoor air. Toxic chemicals can contribute to the development of cancer and birth defects. The EPA requires industries, to report the release of more than 600 listed chemicals that may harm human health (EPA Toxic Release Inventory)(Figure 1). The highest reported concentrations in Montana are in Missoula County.

Radon concentrates in indoor air and can cause lung cancer. Because of Montana's geology some geographic areas are at risk for radon exposure. Since radon is colorless and odorless, special tests must be preformed to determine if it is present.

Asthma

Asthma is a common chronic disease that affects adults and children. Poor air quality, both indoor and outdoor, causes asthma exacerbations. Persons with asthma are especially sensitive to particulate matter with a diameter below 2.5µm ($PM_{2.5}$) which readily enters airways in the lungs. These particles are released by wildfires, wood smoke, and motor vehicle exhausts as well as a variety of factory emissions. A study conducted by investigators from the University of Montana documented an increase in asthma hospital visits on days when wildfires were burning near Missoula (Figure 3).

Water Quality and Heavy Metals

Water can be contaminated with nitrates, pesticides, and heavy metals. Public water supplies are tested periodically for many of these contaminants while private wells may not be tested. Arsenic is a heavy metal that can cause cancer; it contaminates water in some areas of Montana and it is present in indoor living spaces.

Other heavy metals that need to be monitored to protect the health of Montanans include: lead (e.g., paint in older houses) and mercury (e.g., in fish).

Figure 1: Toxic air emissions reported to the Environmental Protection Agency, Montana, 2003

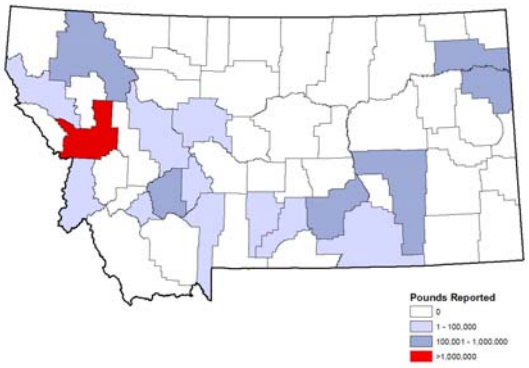


Figure 2: National superfund and state priority sites (locations with severe chemical contamination), Montana, 2005

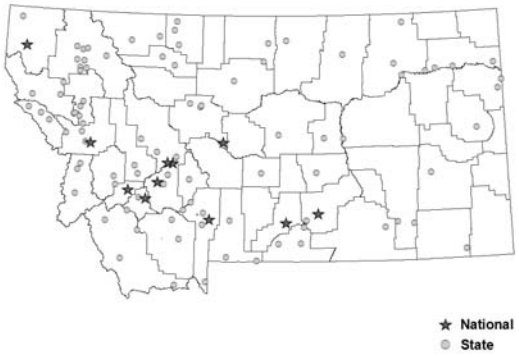
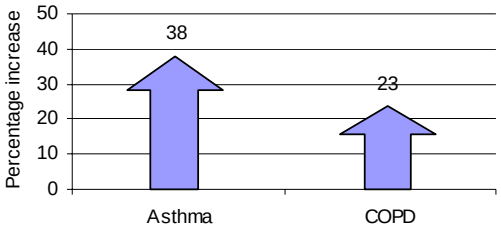


Figure 3: Increase in hospital visits for asthma and chronic obstructive pulmonary disease (COPD) on wild fire days in 2000 and 2003 compared to corresponding non wildfire days in 2001 and 2002, Missoula, Montana



WANT TO KNOW MORE about … Environmental Quality and Health in Montana?

See www.dphhs.mt.gov/epht
Contact Environmental Public Health
(406) 444-2973

MAJOR PREVENTION OPPORTUNITIES

Most of the major causes of premature death, as well as much disease and most injuries in Montana are preventable. In many instances interventions known to be efficacious are available. In this section the major prevention opportunities and related intervention steps will be highlighted.

Target Group	Public Health Problem/ Prevention Opportunity	Intervention
Infants (under 1 year)	Low birth weight SIDS	• Provide adequate prenatal care • Promote baby-on-back sleep position • Provide smoking cessation counseling and treatment for moms and others in baby's family
Pregnant women	Smoking in pregnancy Drinking in pregnancy	• Provide smoking cessation counseling and treatment, especially for American Indian women • Provide substance abuse counseling and treatment
Children (1to14)	Unintentional injuries Tobacco use Overweight/obesity	• Provide programs to decrease drinking/driving by parents and others caring for children • Increase seat belt and safety seat use • Promote use of helmets for bicycle riders • Increase prevention efforts to decrease tobacco use and exposure to tobacco smoke • Provide programs to increase physical activity and improve diet choices
Adolescents and young adults (14 to 44)	Unintentional injuries Overweight/obesity Tobacco use	• Enforce graduated driver's license law • Empower parents to set rules for young drivers • Promote primary seat belt law • Provide programs to decrease drinking/driving • Provide substance abuse counseling • Promote use of helmets by riders of cycles and horses • Establish and promote efforts to increase physical activity and improve diet choices • Increase tobacco use prevention and cessation programs

Target Group	Public Health Problem/ Prevention Opportunity	Intervention
Adults (45 to 64)	Cancer Heart disease Diabetes Overweight/obesity Tobacco use	• Increase early detection of cancer to decrease morbidity and mortality • Establish and promote efforts to increase physical activity and improve diet choices • Promote efforts to improve care for cancer and cardiovascular disease • Increase tobacco use cessation efforts
Older adults (65+)	Heart disease Diabetes Stroke Cancer Overweight/obesity Tobacco use	• Increase early detection of cancer to decrease morbidity and mortality • Promote efforts to improve care for cancer and cardiovascular disease • Promote efforts to increase early recognition and appropriate treatment of stroke • Establish and promote efforts to increase physical activity and improve diet choices • Increase tobacco use cessation efforts
All adults	Significant emotional distress	• Increase early detection and appropriate treatment of depression

Target Setting	Public Health Problem/ Prevention Opportunity	Intervention
Environment (outdoors and indoors)	Exposure to hazardous substances in air, water, places	• Enforce clean indoor air law (tobacco control) • Promote programs that identify human exposure to hazardous substances
Public Health System	Need improved surveillance systems to measure public health improvements	• Establish morbidity surveillance for injuries • Implement an injury prevention program to apply public health interventions to both unintentional and intentional injuries • Prepare and respond to emergent situations, including pandemic influenza

Continue and Strengthen Existing Public Health Programs

Efforts to capture these prevention opportunities should not compromise efforts to continue public health programs, such as immunization programs, which yielded some of the most remarkable public health improvements in the 20th Century. Among the programs and activities that need to be continued and strengthened are:

- Immunization programs for children and adults
- Mental health programs to identify and treat mental illness in a timely way, to avoid relapses, to respond to crises for ill individuals
- Emergency preparedness programs
- Programs that track hazardous environmental exposures and enforce corrective actions
- Smoke alarm education and installation program to prevent fire-related deaths
- Programs that provide services to women (pre-pregnancy, prenatal and postnatal) and children
- Programs to control sexually-transmitted diseases
- Timely, accurate public health laboratory services
- Programs that increase the number of healthcare providers in rural areas and other areas with underserved populations
- Programs to assure food safety in settings that serve food to the public (e.g., restaurants) and to people in institutions (e.g., health care facilities and schools), as well as settings that sell food to the public

WANT TO KNOW MORE about …
Public Health Programs in Montana?

See: "Public Health in Action" series at
www.dphhs.mt.gov/?
Contact: Health Planning Section
Phone (406) 444-2973

APPENDIX: DATA SOURCES

Information presented in this report was derived from the following sources. Interested readers are invited to seek additional information from these sources and to contact specific programs through the "WANT TO KNOW MORE" contacts listed at the end of each section.

Section	Data sources
The people of Montana	• Census data presented in this section come from Montana census files; see www.ceic.mt.gov/Demog/historic/censusplace 1890 2000.pdf • The rural county designation used for Figure 2, page 2 is from Eberhardt MS, Ingram DD, Makue DM, et al. Urban and rural chartbook. Health, United States, 2001. Hyattsville, Maryland: National Center for Health Statistics, 2001.
Causes of death	• Vital record information presented in this section come from www.dphhs.mt.gov/statisticalinformation/vitalstats
Health risk characteristics of adults in Montana	• Data regarding risk characteristics in adults in this section come from the Montana Behavioral Risk Factor Surveillance System (BRFSS) which is supported in part by the Centers for Disease Control and Prevention Cooperative Agreement U58/CC4822808 for 1987-2003 and U58/CCU822808-02 after 2003. • Data regarding smoking in high school youth come from the Montana Youth Risk Behavior Survey; see www.cdc.gov/yrbs. • Childhood immunization data presented in this section come from the Communicable Disease Control and Prevention Bureau, 2004 Provider Office survey of childhood immunizations. • Smoking in pregnancy data presented in this section come from Montana birth certificates provided by the Office of Vital Statistics, Department of Public Health and Human Services.
Communicable disease control	• Communicable disease data presented in this section come from the Communicable Disease Control and Prevention Bureau, Department of Public Health and Human Services.
Mental health and mental health services	• Data regarding risk characteristics in adults in this section come from the Montana Behavioral Risk Factor

	Surveillance System (BRFSS) which is supported in part by the Centers for Disease Control and Prevention Cooperative Agreement U58/CC4822808 for 1987-2003 and U58/CCU822808-02 after 2003. • Service delivery data presented in this section come from the Division of Addictions and Mental Disorders, Department of Public Health and Human Services.
Chronic disease and disability	• Data regarding risk characteristics in adults in this section come from the Montana Behavioral Risk Factor Surveillance System (BRFSS) which is supported in part by the Centers for Disease Control and Prevention Cooperative Agreement U58/CC4822808 for 1987-2003 and U58/CCU822808-02 after 2003. • Cancer incidence data presented in this section come from the Montana Central Tumor Registry, Department of Public Health and Human Services. • Data regarding deaths from chronic diseases presented in this section come from Montana vital records, Office of Vital Statistics, Department of Public Health and Human Services.
Maternal and child health	• Data regarding birth and infant death presented in this section come from Montana vital records, Office of Vital Statistics, Department of Public Health and Human Services. • Data regarding the Women, Infant and Children Program, as well as dental prevention services and children with special needs presented in this section come from the Family and Community Health Bureau, Department of Public Health and Human Services. • Data from the 2001-2002 fetal, infant and child mortality review (FICMR) report were also provided by the Family and Community Health Bureau, Department of Public Health and Human Services. • Data regarding drinking prior to pregnancy presented in this section come from the 2002 Pregnancy Risk Assessment Monitoring System assessment provided the Family and Community Health Bureau, Department of Public Health and Human Services.

Injury	• Data regarding injury deaths presented in this section come from Montana vital records, Office of Vital Statistics, Department of Public Health and Human Services. • Data regarding Emergency Medical Services and trauma systems presented in this section come from the Chronic Disease Prevention and Health Promotion Bureau, Department of Public Health and Human Services.
Environmental quality and health	• Data regarding air quality and superfund and state priority sites presented in this section come from the Public Health System Improvement and Preparedness Bureau, Department of Public Health and Human Services; information can also be found at www.epa.gov/triexplorer and www.deq.state.mt.us/statesuperfund. • Data regarding asthma hospital visits in relation to wild fire days presented in this section come from the Public Health System Improvement and Preparedness Bureau, Department of Public Health and Human Services; these data were derived from an investigation conducted by a research team at the Center for Environmental Health Sciences, University of Montana, see www.dphhs.mt.gov/epht/westmontpilot.pdf.

MONTANA
Department of Public Health & Human Services

Acknowledgements:
Photography provided by Todd S. Harwell include: (front cover) Preston Park, Black Butte, Makoshika Park, Musselshell Valley; (back cover) Haystack Butte

To request more information or additional copies call:
(406)444-4473

The Montana Department of Public Health and Human Services attempts to provide reasonable accommodations for any known disability that may interfere with a person participating in any service, program or activity of the department. Alternative accessible formats of this document will be provided upon request. For information call:
(406)444-6677

600 copies of this public document were published at an estimated cost of $ 0.00 per copy for a total cost of $ 0.00, which includes $ 0.00 printing and $ 0.00 for distribution